

Measure Up

Winter 2009–2010

Assessment news for fourth-grade teachers



Did you know?

- NAEP 2010 will include assessments in geography, U.S. history, and civics.
- More than 480 fourth-grade public schools and 27,000 fourth-grade students will participate in NAEP 2010.
- Assessments will be conducted from January 25 to March 5, 2010.

2009 Mathematics Results Released

Nationally representative samples of more than 330,000 fourth- and eighth-graders participated in the 2009 National Assessment of Educational Progress (NAEP) in mathematics. At each grade, students responded to questions designed to measure their knowledge and abilities across five mathematical content areas (number properties and operations; measurement; geometry; data analysis, statistics, and probability; and algebra).

Gains in students' average mathematics scores seen in earlier years leveled off from 2007 to 2009 at grade 4. While still higher than the scores in the six assessment years from 1990 to 2005, the overall average score for fourth-graders in 2009 was unchanged from the score in 2007.

A similar pattern of results was seen for students performing at different achievement levels. The percentages of fourth-graders performing at or above Basic (82 percent) and at or above Proficient (39 percent) in 2009 were unchanged from those in 2007, but still remained higher than in the assessment years from 1990 to 2005.

Results for student groups were generally similar to those for students overall. At grade 4, there were no significant changes in the average mathematics scores from 2007 to 2009 for students in different racial/ethnic groups, or for those attending public or private schools. Scores for these groups did, however, remain higher than the scores in 1990.

While there was no significant change at grade 4 in either the White- Black or White- Hispanic score gaps since 2007, greater gains over the years for Black students than for White students contributed to a smaller score gap in 2009 than in 1990. The gap between private and public school students in 2009 was not significantly different from the gap in 2007, but was smaller than the gap in 1990.

National Center for Education Statistics (2009). *The Nation's Report Card: Mathematics 2009*. (NCES 2010-451). Institute of Education Sciences, U.S. Department of Education, Washington, D.C.

Sample math skills for Grade 4

- 43% identified parallel and perpendicular lines.
- 59% divided a three-digit number by a one-digit number.
- 75% made a pictograph of given information.



Thank You Teachers!

For the NAEP 2009 assessment, teachers were asked to complete a questionnaire asking them about their previous educational experiences and current teaching practices. The valuable time that teachers spent

completing these questionnaires contributed greatly to the overall data collected from this assessment. The goal of these questionnaires is to provide state-specific examples of the information gathered.

Sample Questions from Teacher Questionnaire:

How many hours of mathematics instruction do your students receive in a typical week?

- A) Less than 3 hours
- B) At least 3 hours, but less than 5 hours
- C) At least 5 hours, but less than 7 hours
- D) 7 or more hours

Do you create groups within this class for mathematics instruction on the basis of ability?

- A) Yes
- B) No

Approximately how much mathematics homework do you assign to students in this class each day?

- A) None
- B) 15 minutes
- C) 30 minutes
- D) One hour
- E) More than one hour

What kind of calculator do your students usually use during mathematics lessons?

- A) None
- B) Basic four-function (addition, subtraction, multiplication, division)
- C) Scientific (not graphing)
- D) Graphing

When you give students a mathematics test or quiz, how often do they use a calculator?

- A) Never
- B) Sometimes
- C) Always

Are computers available for use by you or your students?

- A) Yes, computers are available to my students and to me.
- B) Yes, I have access to computers, but my students do not.
- C) No, neither my students nor I have access to computers at school.

Which of the following statements best describes how well your school system provides you with the materials and other resources you need for mathematics instruction?

- A) I do not have the resources I need.
- B) I have some of the resources I need.
- C) I have most of the resources I need.
- D) I have all of the resources I need.

How often do you meet with students one-on-one to review their work and evaluate their progress in mathematics?

- A) Never or hardly ever
- B) A few times a year
- C) Once or twice a month
- D) Once or twice a week
- E) Every day or almost every day

To access additional data from the school, teacher, or student questionnaires, please visit <http://nces.ed.gov/nationsreportcard/naepdata>

Computer Usage in Fourth Grade

Teachers of fourth-graders who took the NAEP mathematics assessment in 2009 were asked questions about the use of computers in instruction.

- 26 percent of students in the nation's public schools have teachers who use computers during mathematics lessons once or twice a week to extend learning.
- 14 percent of students in the nation's public schools have teachers who use computers during mathematics lessons once or twice a month to draw geometric shapes.
- 9 percent of students in the nation's public schools have teachers who use computers during mathematics lessons to utilize a graphing program.

Percentage of Students Whose Teachers Use Computers During Their Lessons To Practice or Review Math

Frequency	National Public
Every day or almost every day	11%
Once or twice a week	32%
Once or twice a month	29%
Never or hardly ever	28%

NOTE: Some apparent differences between estimates may not be statistically significant.

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2009 Mathematics Assessments.

NAEP Findings from Past Assessments:

Fourth-graders whose teachers had at least five years experience teaching at the elementary or secondary level scored higher than students whose teachers had fewer than five years experience. (Reading 2007)

Fourth-graders whose teachers reported spending 3-4.9 hours a week on mathematics instruction scored higher than students whose teachers spent less than 3 hours a week and higher than those who spent 5 hours or more. (Mathematics 2007)

Fourth-graders whose teachers indicated that they place heavy emphasis on the development of American democracy scored higher than students whose teachers placed little to no emphasis on the subject. (U.S. History 2006)

Writing is a pilot assessment in 2010.

The writing assessment (grades 4, 8, and 12) is based on a newly developed writing framework and will be piloted at a limited number of schools in preparation for the larger 2011 assessment. At grade 4, the writing assessment will be administered with paper and pencil. For the first time, computer-based writing will be assessed in grades 8 and 12, using word processing software with commonly available tools. For more details, visit <http://www.nagb.org/publications/frameworks/2011naep-writing-framework.doc>.

It is important to know...

In 2010, assessments will be administered in the following subject areas:

- Civics
- Geography
- U.S. History
- Mathematics special study (grades 4 and 8 only)
- Writing pilot

What is The Nation's Report Card™ ?

The Nation's Report Card™ informs the public about the academic achievement of elementary and secondary students in the United States. Report cards communicate the findings of the National Assessment of Educational Progress (NAEP), a continuing and nationally representative measure of achievement in various subjects over time.

For over three decades, NAEP assessments have been conducted periodically in reading, mathematics, science, writing, U.S. history, civics, geography, and other subjects. By collecting and reporting information on student performance at the national, state and local levels, NAEP is an integral part of our nation's evaluation of the condition and progress of education. Only information related to academic achievement and relevant variables is collected. The privacy of individual students and their families is protected, and the identities of participating schools are not released.

This publication was prepared for the National Assessment of Educational Progress by Westat under contract (ED-07-CO-0083) to the National Center for Education Statistics, U.S. Department of Education.

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